UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,399	06/23/2003	Michael V. Solomita JR.	22868/2	7794

7590 10/23/2006

Brian L. Michaelis, Esq.
Brown Rudnick Berlack Israels LLP
One Financial Center
Boston, MA 02111

EXAMINER	
WEST, JEFFREY R	

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/601,399	SOLOMITA ET AL.	
	Examiner	Art Unit	
	Jeffrey R. West	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 21-26 are rejected under 35 U.S.C. 102(b) as being anticipated by EP Patent No. 0 055 314 to Hedges.

With respect to claim 21, Hedges discloses a method for managing a network of devices consuming a resource provided by a utility, said method comprising the steps of initiating a state change, from a utility computing platform, to affect resource consumption at a premise (abstract, lines 1-3 and page 10, lines 1-9 and Figure 1), receiving said state change from said utility computing platform at a gateway at said

premise (page 10, lines 3-6 and Figure 1), processing, at said gateway, said state change from said utility computing platform to determine an automated energy management scheme for affecting resource consumption at said premise (page 13, lines 1-13 and Figure 2), translating, at said gateway, said state change from said utility computing platform into a native format used by at least one device in said network of devices consuming said resource (i.e. convert the RF state change signal to corresponding load controlling logic) (page 12, lines 15-25 and Figure 2), and generating control signals (page 12, lines 21-25) to control said network of devices consuming said resource (page 15, lines 18-25), said control signals being a function of said state change from said utility platform and said energy management scheme for said premise determined by processing at said gateway (page 12, lines 21-25 and page 13, lines 1-13).

With respect to claim 22, Hedges discloses monitoring consumption of devices at said gateway (page 12, lines 8-11) to determine compliance with said energy management scheme (page 10, lines 1-14), and feeding back to said utility computing platform results of said monitoring step (page 9, lines 10-17 and page 10, lines 9-14).

With respect to claim 23, Hedges discloses that additional state changes may be initiated by said utility as a function of the results of said monitoring step (page 10, lines 1-14).

With respect to claim 24, Hedges discloses that said premise is a single premise or a selected grouping of premises (page 12, lines 3-6 and Figure 1)

With respect to claim 25, Hedges discloses said processing step involves applying rules from a rules engine to said state change (i.e. engine of rules controlling predetermined state changing sequences) (page 14, lines 2-13).

With respect to claim 26, Hedges discloses that said additional state changes are initiated to achieve target demand reduction (page 10, lines 1-14).

Response to Arguments

4. Applicant's arguments filed August 03, 2006, have been fully considered but they are not persuasive.

Applicant argues:

> Generally, Hedges discloses more of an "open-loop" energy management system than is disclosed and claimed by the Applicants. Hedges can only **deduce** the amount of energy that is demand-limited at an individual premise. Hedges can not, and does not, know at the utility platform level what is happening at an individual residence or for that matter at an individual energy consuming appliance. This is because Hedges only collects meter data for a population of residences, at the sub-station level. No individual premise level data communication from the premise to the utility is disclosed or suggested in Hedges.
>
> In contrast, according to the present invention, the amount of energy that is managed/demand-limited at an individual premise can be directly measured and known at the utility via the claimed relationship of the utility computing platform, the gateway at the premise and the network of consuming devices on the premise. According to the invention claimed, and in contrast to Hedges, the gateway acts autonomously (i.e. in a premise-based closed-loop). The gateway receives an energy management scheme and based on the data it is collecting it adjusts the consumption to best meet the scheme. Hedges in contrast does not provide for autonomous, automated premise-level energy management.

The Examiner first asserts that the claimed invention, specifically claim 21, does not contain limitations that specify an individual resident. Applicant appears to

equate the term "premise" as being limited to a single resident while this term has not been defined as such. Further, the Examiner notes that the term "premise" is to be broadly interpreted as encompassing more than one resident as claim 24 further limits claim 21 "wherein said premise is a single premise or a selected group of premises."

The Examiner also asserts that Applicant argues that the Hedges reference is different than the instant invention by presenting arguments with respect to individual premises and autonomy, but has not clearly indicated what claimed limitations are not met by the Hedges reference.

The Examiner asserts that claim 21 requires:

> initiating a state change, from a utility computing platform, to affect resource consumption at a premise, receiving said state change from said utility computing platform at a gateway at said premise, processing, at said gateway, said state change from said utility computing platform to determine an automated energy management scheme for affecting resource consumption at said premise, translating, at said gateway, said state change from said utility computing platform into a native format used by at least one device in said network of devices consuming said resource, and generating control signals to control said network of devices consuming said resource, said control signals being a function of said state change from said utility platform and said energy management scheme for said premise determined by processing at said gateway.

None of these limitations, however, require controlling only one individual residence, rather than a plurality of residences, or any aspects of autonomy.

The Examiner maintains that Hedges discloses:

A method for managing a network of devices consuming a resource provided by a utility, said method comprising the steps of initiating a state change, from a utility computing platform, to affect resource consumption at a premise:

> An energy management method for controlling electrical power consumption in each of a plurality of residential circuits having a plurality of loads. (abstract, lines 1-3)
>
> For example, if the decision is made in the power dispatch facility 17 that the total load 10 on the utility's power generation facility 11 must or should be reduced by a given amount, commands are sent from the transmitter antenna 22 to the receiving antennas 23 of each of the residential load controller 13 to reduce the demand limit in each individual residence by an equal percentage, which total reduction equals the desired reduction of the total load 10 if each residence is using power at or just under its respective demand limit. (page 10, lines 1-9)

receiving said state change from said utility computing platform at a gateway at said premise:

> commands are sent from the transmitter antenna 22 to the receiving antennas 23 of each of the residential load controller 13 (page 10, lines 3-6)

processing, at said gateway, said state change from said utility computing platform to determine an automated energy management scheme for affecting resource consumption at said premise:

> The operation of the system of Fig. 2 in accordance with the method of the invention may be illustrated by assuming that the residential consumer has imposed a demand limit of 10kw on his residence and, with all loads in operation, the actual demand imposed by the loads is 9.8kw. In order to effectuate a reduction in its overall load, the utility generates signals commanding a 10% reduction in demand limits for all residences in its distribution network. These signals 38 are detected to the receiver 39 and fed to the logic of the microprocessor which overrides the customer-selected 10 kw demand limit and reduces the limit to 90. kw. The logic 45 of the microprocessor will generate sequentially shed signals 46 to a sufficient number of the LCD's 37 to shed enough loads to reduce the actual demand of the residence 31 to 9.0 kw or lower. (page 13, lines 1-13)

translating, at said gateway, said state change from said utility computing platform into a native format used by at least one device in said network of devices consuming said resource (i.e. convert the RF state change signal to corresponding load controlling logic):

> Utility generated signals 38 from a radio antenna, telephone line, or from the utility's own power line are fed to a receiver 39. A control panel 41 is provided which allows each residence consumer to select and impose an upper limit on the demand which can be imposed by all of the loads (controlled and uncontrolled) in the residence 31.
> The customer-selected demand limit information 42, the received utility-generated signals 43 and the total demand information data 44 are fed to the logic 45 of a computer such as a microprocessor which correlates the information and transmits shed-restore commands 46 to the load controlled devices 37. (page 12, lines 15-25)

and generating control signals to control said network of devices consuming said resource:

> The customer-selected demand limit information 42, the received utility-generated signals 43 and the total demand information data 44 are fed to the logic 45 of a computer such as a microprocessor which correlates the information and transmits shed-restore commands 46 to the load controlled devices 37. (page 12, lines 21-25)
> The typical residential load consists of resistive loads such as water heaters, cooking stoves, electric clothes dryer heaters, incandescent lights, etc., and the reactive components of the load are usually inductive components such as electric motors which drive air conditioning compressors, swimming pool filtration pumps, refrigerator compressor motors, and the motors used to drive laundry equipment such as washers and dryers. (page 15, lines 18-25)

said control signals being a function of said state change from said utility platform and said energy management scheme for said premise determined by processing at said gateway:

> The customer-selected demand limit information 42, the received utility-generated signals 43 and the total demand information data 44 are fed to the

logic 45 of a computer such as a microprocessor which correlates the information and transmits shed-restore commands 46 to the load controlled devices 37. (page 12, lines 21-25).

The operation of the system of Fig. 2 in accordance with the method of the invention may be illustrated by assuming that the residential consumer has imposed a demand limit of 10kw on his residence and, with all loads in operation, the actual demand imposed by the loads is 9.8kw. In order to effectuate a reduction in its overall load, the utility generates signals commanding a 10% reduction in demand limits for all residences in its distribution network. These signals 38 are detected to the receiver 39 and fed to the logic of the microprocessor which overrides the customer-selected 10 kw demand limit and reduces the limit to 90. kw. The logic 45 of the microprocessor will generate sequentially shed signals 46 to a sufficient number of the LCD's 37 to shed enough loads to reduce the actual demand of the residence 31 to 9.0 kw or lower. (page 13, lines 1-13)

Applicant then argues:

More specifically, in making the rejections over Hedges, the Examiner erroneously equates converting an RF signal that transmits information "in the form of a demand limit increase or decrease..." (Hedges, pg. 9, lines 17-25), with Applicants' claimed translation of state change signals "into a native format used by at least one device" in a network of devices in applicants' configuration. In contrast to Applicants' invention where a premise is subject to a claimed "energy management scheme for affecting resource consumption" at the premise, and state change signals are translated at a gateway to implement the premise's energy management scheme (i.e. at the premise level), Hedges does not effect energy management at an individual premise level. Rather, as clearly disclosed in Hedges all that is sent down to the premise level is a demand limit. There is no automated control or individual premise-level energy management scheme executed via a gateway and network.

...

Hedges merely sends/imposes a demand limit on individual premises. Hedges does not disclose or suggest a gateway at a premise that communicates in a native format with devices in the premise such as Applicants particularly claim. In stark contrast, Hedges does not generate control signals to control a network of devices on the premise, such as applicant specifically claims. Further, Hedges sends only a demand limit and each residence/consumer is subjected to "precisely the same utility-control, namely, the demand limit..." (Hedges, pg. 11, lines 11-13). In the invention disclosed and claimed by Applicants, control signals

are generated as "a function of said state change from said utility platform and said energy management scheme for said premise determined by processing at said gateway" as specifically recited in Applicant's claim 21 as amended.

The Examiner first maintains that Hedges' disclosure of obtaining utility generated state-change signals from a radio antenna which are then converted into a form compatible with corresponding load controlling logic meets the limitation of "translating, at said gateway, said state change from said utility computing platform into a native format used by at least one device in said network of devices consuming said resource".

The Examiner also maintains, that as noted above, the claimed limitations only require control for a premise and do not specify any individual resident and further the invention of Hedges specifically discloses "[a]n energy management method for controlling electrical power consumption in each of a plurality of residential circuits having a plurality of loads." (abstract, lines 1-3)

With respect to the processing at the gateway level, the Examiner maintains that Hedges discloses receiving said state change from said utility computing platform at a gateway at said premise ("commands are sent from the transmitter antenna 22 to the receiving antennas 23 of each of the residential load controller 13" (page 10, lines 3-6)). Hedges then discloses the processing aspects of the gateway at said premise, ("The operation of the residential load controller (RLC's) 13 of Fig. 1 is further illustrated in Fig. 2 which schematically depicts the elements which are utilized in accordance with the invention at each residential residence" (page 12, lines 3-6)), specifically processing, at said gateway, said state change from said

utility computing platform to determine an automated energy management scheme for affecting resource consumption at said premise ("...the utility generates signals commanding a 10% reduction in demand limits for all residences in its distribution network. These signals 38 are detected to the receiver 39 and fed to the logic of the microprocessor which overrides the customer-selected 10 kw demand limit and reduces the limit to 90. kw. The logic 45 of the microprocessor will generate sequentially shed signals 46 to a sufficient number of the LCD's 37 to shed enough loads to reduce the actual demand of the residence 31 to 9.0 kw or lower." (page 13, lines 1-13)) and translating, at said gateway, said state change from said utility computing platform into a native format used by at least one device in said network of devices consuming said resource ("Utility generated signals 38 from a radio antenna, telephone line, or from the utility's own power line are fed to a receiver 39...The customer-selected demand limit information 42, the received utility-generated signals 43 and the total demand information data 44 are fed to the logic 45 of a computer such as a microprocessor which correlates the information and transmits shed-restore commands 46 to the load controlled devices 37." (page 12, lines 15-25))

Applicant then argues:

> Significantly, Hedges <u>does not</u> "determine an automated energy management scheme for affecting resource consumption" at a premise. Quite to the contrary, Hedges teaches away from premise-level automation and provides <u>the same</u> utility control to each premise in the form of a demand limit. As clearly disclosed in Hedges (see e.g. Fig. 1), any energy management is done basically at the substation and power dispatch level. Only a "total demand limit" is determined

and transmitted to the residence based on metering the substations. Applicants' claimed invention in claim 21 as amended is patentably distinct from the energy management system disclosed in Hedges.

The Examiner maintains that, as noted above, Hedges discloses "[a]n energy management method for controlling electrical power consumption in each of a plurality of residential circuits having a plurality of loads." (abstract, lines 1-3) that is automated based on utility control signals "...the utility generates signals commanding a 10% reduction in demand limits for all residences in its distribution network. These signals 38 are detected to the receiver 39 and fed to the logic of the microprocessor which overrides the customer-selected 10 kw demand limit and reduces the limit to 90. kw. The logic 45 of the microprocessor will generate sequentially shed signals 46 to a sufficient number of the LCD's 37 to shed enough loads to reduce the actual demand of the residence 31 to 9.0 kw or lower. (page 13, lines 1-13)

Applicant argues:

The Examiner further rejected claim 22, with the assertion that "Hedges discloses... feeding back to said utility computing platform results of said monitoring step...". However, as discussed hereinbefore, Hedges does not do ANY monitoring at the premise/gateway level (ONLY at the substation level). Furthermore, Hedges does not feed the results of premise level monitoring back to a utility computing platform (again, ONLY demand at the substation level is considered at the utility level in Hedges).

The Examiner asserts that the device located at "each individual residence" includes "a sensor 35 which may, for example, measure either instantaneous power

or current demand" (i.e. monitors consumption of devices at the gateway) (page 12, lines 9-11) and, as shown in Figure 1 via feedback lines 14, "the power consumed by the residence 13 served by each substation 12 is monitored by metering facilities 15" (i.e. feeds back to said utility computing platform results of said monitoring step). (page 9, lines 10-17).

Applicant argues:

> Claims 23-26 are dependent from allowable claims 21 or 22 (directly or indirectly), therefore for at least the foregoing reasons those claims are allowable as well. One point of note, however, with regard to claim 25 is that no mention is made whatsoever in Hedges of any rules engine or processing at a gateway, in a manner that applies rules from a rules engine. The portion of Hedges that the Examiner erroneously cites, (pg. 14, lines 2-13) relates to restoration of loads.

Hedges discloses:

> The restoration of the loads may be accomplished in the reverse sequence in which they were shed (the customer establishing such load priority) or in accordance with various other restoration sequences. In the presently preferred embodiment of the invention, the loads are restored in reverse sequence of shedding, if possible, but if such sequential restoration is impossible, the loads may be restored out of sequence until the total load is as close as possible to the demand limit, without exceeding the limit. This load restoration optimization method which is utilized in accordance with the presently preferred embodiment of the present invention is disclosed in the co-pending application of Hedges et al, Serial No. 909,850, filed May 26, 1978, entitled "ELECTRICAL LOAD RESTORATION METHOD". (page 14, lines 2-13).

The Examiner, therefore, maintains that Hedges discloses applying predetermined rules to optimize the restoration of loads in or out of sequence in order to satisfy predetermined rule conditions indicating that the total load is as close as possible to the demand limit, without exceeding the limit.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

U.S. Patent No. 6,538,577 to Ehrke discloses a method for managing a network comprising receiving a demand-response event requested over a wide area network from the utility to a gateway (column 7, lines 1-8) in communication with a local network (column 7, lines 9-20), forwarding the demand-response event request through the local network to a translator for the operational resource consuming device (column 7, lines 9-20), translating the request into a native format for the operational resource consuming device (column 7, lines 15-20), receiving and storing post demand-response event data from the operational resource consuming device (column 7, lines 20-22 and 56-57 and column 9, lines 30-38), and forwarding the post demand-response event data through the wide area network to the utility (column 7, lines 25-33), the utility analyzing the post demand-response event data (column 1, lines 21-23 and column 9, lines 30-38).

U.S. Patent No. 6,622,097 to Hunter teaches a method and apparatus for reading and controlling electric power consumption comprising a gateway control device that is portable (column 5, lines 17-23 and column 7, lines 30-35), includes a graphical user interface (column 6, lines 50-64) and a user interface control mechanism for selecting portions of the user interface (i.e. mouse pointer) (Figure 6 and column 7, lines 30-35) in order to initiate a state change of the operational

resource consuming device (column 7, lines 56-63) for cost efficiency (column 8, lines 18-26). Hunter teaches that the control device controls the consumption of units of resource provided by a utility (column 7, lines 64-65). Hunter also teaches that the device is a thermostat for monitoring ambient temperature in communication with a climate control unit in communication with a communication network (column 7, line 64 to column 8, line 7) whereby the thermostat transmits temperature data to the gateway (i.e. end-user interface) (column 8, lines 14-16 and 34-42) and receives command signals from the gateway to the climate control unit to heat or cool the ambient airspace by receiving operational data from the resource consuming device comparing the data to a rules set (i.e. baseline levels) and transmitting a state change command to the resource consuming device when a rule is satisfied (column 7, line 64 to column 8, line 7).

U.S. Patent No. 5,696,695 to Ehlers et al. teaches a system for rate-related control of electrical loads including a menu and button driven graphical user interface (column 14, lines 38-56 and Figures 11-15).

U.S. Patent No. 6,029,092 to Stein teaches a system and method for providing modular control and for managing energy consumption.

U.S. Patent No. 6,157,874 to Cooley et al. teaches power control systems and processes.

U.S. Patent No. 6,281,601 to Edelman et al. teaches a turbogenerator power control system and method.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey R. West
Examiner – AU 2857

October 16, 2006